RHIZOLYSIS: A PHYSIOTHERAPIST'S REPORT [1]

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In the Australian medical and paramedical fields considerable interest has been stirred by percutaneous rhizolysis, the procedure introduced here by Dr. W. E. Skyrme Rees, M.B., Ch.B., F.R.C.S. The technique itself comes under intensive scrutiny. In theory the technique is a "percutaneous bilateral section of the posterior primary rami", either lumbar or cervical.

At the workshop in manipulative techniques arranged by the Coppleson postgraduate medical institute in Sydney in July 1972, Dr. Robert R. Munro, associate professor of anatomy, University of Sydney, stated that at that stage he could see no specific reason why a section of the posterior primary rami would not assist in the relief of back pain caused by the interarticular joints. Dr. Rees refused invitations on two occasions to demonstrate his procedure on a cadaver at the Department of Anatomy, University of Sydney. A medical practitioner, who had seen Dr. Rees perform the operation and who practised the operation himself, accepted. He demonstrated his procedure on a cadaver and Dr. Munro dissected out the track of the knife. On that occasion the incision was about 2 cm lateral to the position required to cut the medial branch of the posterior primary ramus supplying the interarticular joint. Dr. Munro pointed out that Dr. Rees himself may put his incision in a different area. In the same department, a B.Sc. medical student, Mr. N. Bogduk, has succeeded in demonstrating reflex muscle contraction in certain muscles of the cat and the human following stimulation of structures in the back supplied by posterior primary rami. Electrical stimulation of the medial branch of the posterior primary ramus in the cat induces a similar reflex muscular response.

At a meeting of the Manipulative Therapist's Special Group of Queensland in March 1973, Dr. Marius Fahrer, anatomist from the University of Queensland, commented that in his opinion, during rhizolysis it would be impossible to cut sufficiently deep to section the sinu-vertebral nerve, which conveys pain sensation over at least two vertebral levels, from the posterior aspect of the intervertebral disc, the posterior longitudinal ligament, the ligamentum flava, the capsules of the zygopophyseal joints and the dural nerve sheaths.

At a meeting of the same manipulative group in October 1972, Dr. J. G. Toakley, honorary neurosurgeon, Mater Misericordiae Hospital, answering a question from the audience concerning rhizolysis, stated that although he had conducted a full survey over a large number of cases treated surgically by him with this technique, he was in fact endeavouring to cut the posterior primary ramus but was unsure whether he did or not, and the only method of knowing was if the pain was relieved. In a series of 200 cases, in the process of publication in the Medical Journal of Australia, four out of five patients had relief of symptoms in varying degrees.

Further interesting developments were described by Dr. Toakley, on his return from the United States, where a neurosurgeon using an image amplifier for accuracy and a needle insulated to protect intervening tissues from current, was cauterising the posterior primary ramus.

Whatever the mechanism involved, the immediate postoperative result in successful cases is an increase in mobility and a decrease in pain. The aim of this report is to present some facts observed during physiotherapy treatment of 82 patients in the post rhizolysis stages. No attempt is made to correlate these findings with scientific theory, and it is advisable to point out that all were private bed patients and consequently the report is not to be considered a representative one as it does not take into account repatriation, public hospital or Workers' Compensation patients.

Cases Selected for Rhizolysis

As to be expected in the surgical treatment of lumbar and cervical conditions, all patients selected for rhizolysis by Dr. Toakley and his assistant neurosurgeon, Dr. Leigh Atkinson, had repetitive histories of back and neck pain of at least one year's duration, while in 27 cases, the pain was of five to thirty-five years' duration; most patients had been receiving prior treatment of some kind, whether conservative, surgical or chiropractic.

Cervical

There were eight cases diagnosed as of C5-C6 and/or C6-C7 origin. All patients except one were female, while females made up only one third of the lumbar cases. The patients complained of varying degrees of headache and neck pain, sometimes radiating to the shoulder arm and hand. Cervical movement was limited in varying degrees by pain, muscle spasm or what appeared to be limitation of joint mobility. This last was particularly evident in one lady who had been wearing a cervical collar for some time and also had associated limitation of shoulder joint movement.

Lumbar

All patients with pain of lumbar origin were considered to be of L4-L5 and/or L5-S1 origin, and received bilateral sections at both levels. They complained of varying degrees of discomfort with a picture of unilateral or bilateral back pain, non-radiating or radiating to either or both hips, to the

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posterior or lateral thighs, lower legs and feet. Some complained of tenderness, aching, or "stiffness" of the muscles of the back and calves.

These patients also showed some degree of limitation of mobility of the lumbar spine from slight to severe, influenced in part by prior operations, the wearing of braces for long periods, joint rigidity and posture habits developed over a long term. Associated with this and indeed, evident in all cases, was some loss of straight leg raising varying from 10% to 45%.

None of the cases selected for rhizolysis suffered from instability of the spine, or exhibited neurological signs.

Postoperative Procedure and Assessment

The rhizolysis procedure itself is performed under local anaesthetic, and while still in theatre, the patient is put through as full a range of movement as possible by the surgeon. The aim of the physiotherapist is to maintain and increase this range with simple mobility exercises. In some patients who have been immobilised by brace or collar, this takes a longer period and it is wise to continue supervision after they leave hospital, if possible. Some attention to posture is also of great benefit to assist in correction of those long developed habits mentioned previously.

The physiotherapist's visit occurs in the first twelve hours after the operation. The factors common in all cases were heavy bleeding in spite of pressure dressings, and, on completion of exercises, a great aggravation of local pain, combined with a natural dislike of movement. Because of this discomfort, it is obvious that the presence of the physiotherapist is necessary to encourage the immediate return of maximum mobility.

Early Assessment

On a second visit, the following morning, prior to his discharge from hospital, continuance of the mobility exercises and posture correction was impressed on the patient. Discomfort was much less and assessment possible. Of the eight patients in the cervical group:

Five showed improvement in pain symptoms and mobility

Seven showed improvement in mobility

One showed no change.

Of the 74 patients in the lumbar group:

Improvement of pain symptoms was complete and dramatic in 54 patients. There was also improved mobility.

There was improvement in lumbar mobility and straight leg raising in 72 cases, ranging from slight to complete. The two remaining patients were males of 57 and 82 years and were also among those with no improvement of pain.

Occupations were not found to have any bearing on results.

Assessment after Six to Twelve Months

Of the cervical group of eight patients:

Four improved in both pain and mobility.

One, improved in the post-operative period, suffered recurrence of symptoms.

Three, originally showing improved mobility only, returned to pre-operative condition.

Of the 74 patients in the lumbar group, only 31 patients were contacted. Two facts stood out:

1. Those who at the time of the initial assessment showed relief of their pain symptoms plus an increase in mobility continued to retain their movement. Those who had followed through with their exercise programme increased their mobility further.

2. Those who showed increased mobility but no improvement in pain, showed no further improvement in their pain and frequently lost their improved mobility.

Consequently while it would appear that physiotherapy did much to augment mobility and regain normal function where all symptoms were relieved by rhizolysis, increased mobility was not the only factor involved.

SUMMARY

In investigation of rhizolysis, introduced to Australia by Dr. Rees, experiments by the Department of Anatomy, University of Sydney, to determine physiological responses by stimulation of the medial branch of the posterior primary ramus of the cat have demonstrated reflex muscle response similar to that induced by stimulation of structures in the back supplied by the posterior primary ramus.

In the surgical field attempted section of the posterior primary ramus is the basis of this series of 82 cases taken from the private bed patients of Dr. J. G. Toakley and Dr. Leigh Atkinson. The patients exhibited chronic type backache and headache, and quite a large number of them were resistant to all other forms of treatment.

Post rhizolysis physiotherapy, while not affecting the major result of the technique, which is the immediate relief of pain in successful cases, is necessary to effect maximum activity plus mobility following operation. This increased mobility has considerable influence on the ultimate resulting efficiency.

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